

REMARKS

Claims 1-20 are pending and stand ready for further action on the merits. The specification has been amended to remove a typographical error. No new matter has been added by way of the above-amendment.

The following sections correspond to the sections of the outstanding Office Action.


Specification

The Examiner objects to the fact that the cyanovaleric acid species at page 5, line 7 does not include a dash after the "4'."

In response, Applicants have amended page 5, line 7 by inserting the dash after the "4'."

The Examiner objects to Experiment 1 of the present specification for reciting the term "t-dodecyl" as a compound in the reaction, and alleges that this term renders the specification confusing, since it has many tertiary isomers. The Examiner requests a defined structure.

In response, Applicants respectfully submit that a single structure is not intended to be defined by the inventors. The inventors purposefully used t-dodecyl mercaptan based on its properties as a mixture of isomers. A copy of page 623 of the Aldrich catalog (Aldrich Chemical Company, Inc., 1994) wherein tert-dodecyl mercaptan (given the proper name tert-dodecanethiol)



is taught to be a mixture of isomers. Thus, the specification is sufficiently definite, since the skilled artisan would be able to either synthesize or purchase t-dodecyl mercaptan as used in Example 1.

In view of the above comments and amendments, Applicants respectfully request that the objection to the specification be withdrawn.

Election/Restriction

The Examiner has restricted the claims under 35 U.S.C. §121 as follows:

- I. Claims 1-10, drawn to a resin useful in making paraffinic solvent based paints, classified in class 524, subclass 80+.
- II. Claims 11-20, drawn to a paint formulation using resin of Group I, classified in class 526, subclass 72+.

Applicants affirm the election of Group I comprising claims 1-10 with traverse.

As evidence that the inventions of Groups I and II are distinct, the Examiner indicates that they are related as combination and subcombination.

Applicants respectfully submit that the Examiner's classification of the groups is improper, and claims 1-10 and claims 11-20 appropriately relate to one another as a

"subcombination essential to combination". MPEP §806.05(c)(II) describes this relationship as follows:

AB_{sp}/B_{sp} No Restriction

If there is no evidence that combination AB_{sp} is patentable without the details of B_{sp}, restriction should not be required. Where the relationship between the claims is such that the separately claimed subcombination B_{sp} constitutes the essential distinguishing feature of the combination AB_{sp} as claimed, the inventions are not distinct and a requirement for restriction must not be made, even though the subcombination has separate utility.

Under this analysis, the resin described in claims 1-10 is "B_{sp}" and the paint formulation comprising the resin is the combination "AB_{sp}". Here, the relationship between the claims is such that the separately claimed subcombination "B_{sp}", the resin, constitutes the essential distinguishing feature of the combination "AB_{sp}", the paint formulation comprising the resin. Thus, the inventions are not distinct and a requirement for restriction between claims 1-10 and claims 11-20 must not be made. As such, rejoinder of claims 11-20 with claims 1-10 is respectfully requested.

Gindre et al., U.S. 5,496,905 in view of Aerts et al., U.S. 5,753,756

Claims 1-10 are rejected under 35 U.S.C. §103(a) as being unpatentable over Gindre et al. in view of Aerts et al. Applicants respectfully traverse the rejection.

Advantages of the Present Invention

The present invention comprises a resin which is particularly useful in making paraffinic solvent based paints, said resin being comprised of repeat units which are derived from (a) tertiary-butyl cyclohexyl methacrylate (TBCHMA), (b) alkyl methacrylate monomers, and (c) alkyl acrylate monomers. These resins exhibit good hardness and coatings made with these resins are highly resistant to yellowing and discoloration to exposure to ultra-violet light over long periods of time.

The examples of the present specification show the advantageous properties of using TBCHMA as a monomer in the resin. In inventive example 1, TBCHMA, isobutyl methacrylate and 2-ethylhexyl acrylate were copolymerized to form a resin. This resin was compared with the EC1 resin and the U200 resin. In the EC1 resin the TBCHMA was replaced with paramethyl styrene and in the U200 resin the TBCHMA was replaced with para-tertbutyl styrene. The data is shown in the following table:

TABLE 1

Property	TBCHMA Resin	EC1 resin	U200 resin
Viscosity in ISOPAR G	36 sec	20 sec	18 sec
Viscosity in EXXOL D40	33 sec	19 sec	16 sec
C.S.T. in ISOPAR G	-22°C	14°C	-6°C
C.S.T. in EXXOL D40	-30°C	-7°C	-25°C

As can be seen from the data of Table 1, the inventive resin containing TBCHMA has improved solubility in ISOPAR G and EXXOL D40 over the resins containing para-methyl styrene and para-tertbutyl styrene.

The resistance to yellowing by UV light of clear films is shown in the data of the following Table 2:

TABLE 2

UV Exposure Time	TBCHMA Resin	Plioway® U200 resin
None	0	0
1 week	<0.5	2
2 weeks	<0.5	3.5
3 weeks	<0.5	6
4 weeks	<0.5	8
5 weeks	<0.5	9
6 weeks	<0.5	10.5



As can be seen from Table 2, the TBCHMA containing resin was very resistant to yellowing whereas the Plioway® U200 resin yellowed with continuing exposure to ultraviolet light.

The above-discussion has been provided to highlight the patentable distinctions between the present invention and the cited references.

Gindre et al.

Gindre et al. teach a resin for paints which is soluble in paraffinic solvents and which is resistant to UV light, wherein the resin is prepared with para-tertiary butyl styrene (PTBS), alkyl methacrylate and alkyl acrylate comonomers. This resin is taught to be useful in formulations for both interior and exterior coatings. As acknowledged by the Examiner, Gindre et al. fail to teach or suggest that the PTBS monomer can be replaced with the inventive TBCHMA monomer.

Aerts et al.

In order to cure this deficiency of Gindre et al., the Examiner cites Aerts et al. Applicants respectfully submit that Aerts et al. fail to cure the deficiencies of Gindre et al.

Aerts et al. teaches a coating composition useful for a finish for automobiles and trucks in which the film-forming binder comprises:

- (a) 10-50 wt.% of a hydroxy-functional monomer;
- (b) 10-90 wt.% of comonomers selected from the group consisting of alkyl-substituted cycloaliphatic (meth)acrylic comonomers, alkyl-substituted aromatic vinyl comonomers and combinations thereof.

Applicants respectfully submit that Aerts et al. do not cure the deficiencies of Gindre et al., since Aerts et al. fails to teach or suggest that replacing the PTBS of Gindre et al. with TBCHMA will improve the resistance to yellowing under ultraviolet light as found by the present inventors. The present inventors have shown in the experiments of the present specification, as reiterated in Table 2 above, that resin compositions containing TBCHMA have substantially superior resistance to yellowing under UV light when compared to the resins containing PTBS.

It can not be said that Aerts et al. fairly suggests that there would be improved resistance to yellowing under UV light upon incorporating TBCHMA in the resin composition. At column 7, lines 35-42, Aerts et al. teach:

To improve weatherability of a finish produced by the present coating composition, an ultraviolet light stabilizer or a combination of ultraviolet light stabilizers can be added in the amount of about 0.1-5% by weight, based on the weight of the binder. Such stabilizers include ultraviolet light absorbers, screeners, quenchers, and specific hindered amine light stabilizers. Also, an antioxidant can be added, in the amount of about 0.1-5% by weight, based on the weight of the binder.

Based on this teaching, the skilled artisan would reasonably conclude that to improve the stabilization to UV light, additional compounds would have to be incorporated in the paint formulation.

Also, as can be seen from the examples of Aerts et al., Aerts et al. are concerned with an improved balance of viscosity and dry time and do not test for stability to yellowing under UV light.

Thus, Applicants respectfully submit that the presently claimed resin composition and paint formulation are not made obvious by the combination of Gindre et al. and Aerts et al., since this combination of references fail to teach or suggest that replacing the PTBS comonomer in the resin of Gindre et al. with the inventive TBCHMA, engenders in the resin improved resistance to yellowing. Accordingly, withdrawal of the rejection is respectfully requested.

Yezrielev et al., U.S. 5,034,154 and Aerts et al.

Claims 1-10 are rejected under 35 U.S.C. §103(a) as being unpatentable over Yezrielev et al. in view of Aerts et al. Applicants respectfully traverse the rejection.

Yezrielev et al. disclose an acrylic copolymer resin useful as components in high solids acrylic coatings suitable for electrostatic sprays which includes (a) a hydroxy-substituted alkyl (meth)acrylate, (b) a non-hydroxy substituted alkyl (meth)acrylate, and (c) an internal olefin. Optionally, a monomer

such as styrene or α -methyl styrene may be incorporated in the polymer.

As acknowledged by the Examiner, Yezrielev et al. fail to teach or suggest the use of TBCHMA as a comonomer.

In order to cure this deficiency, the Examiner cites Aerts et al. Applicants respectfully submit that Aerts et al. fail to cure the deficiencies of Yezrielev et al.

As mentioned above, the presently claimed resin composition has unexpectedly improved resistance to yellowing upon exposure to ultraviolet light in view of the fact that TBCHMA is incorporated in the inventive copolymer in place of the styrenic comonomer. Since Aerts et al. fail to teach or suggest that there would be improvement to the resistance to yellowing under UV light, Applicants respectfully submit that the inventive resin composition containing TBCHMA is not obvious based on the combination of Yezrielev et al. and Aerts et al.

As such, withdrawal of the rejection is respectfully requested.

PTO-892 Form

Applicants note that in section 14 of the outstanding Office Action, the Examiner cites seven references which the Examiner considers are pertinent to Applicants' disclosure. However, of these seven references, the Examiner has only made of record Yezrielev et al., U.S. 5,034,154. Applicants respectfully request

that the Examiner issues a Supplemental PTO-892 form which lists all seven of these references.

Conclusion

In view of the above amendments and comments, Applicants respectfully submit that the claims are in condition for allowance. A notice to such effect is earnestly solicited.

Applicants have attached hereto a marked up version of the claims to show the changes made for the Examiner's convenience.

Pursuant to the provisions of 37 C.F.R. §§ 1.17 and 1.136(a), the Applicants hereby petition for an extension of one (1) month to February 3, 2003 in which to file a reply to the Office Action. The required fee of \$110.00 is enclosed herewith.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional


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fees required under 37 C.F.R. § 1.16 or under § 1.17;
particularly, extension of time fees.

Respectfully submitted,

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Attachment: Version with Markings to Show Changes Made

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification has been amended as follows:

The fourth paragraph beginning on page 4 and ending on page 5 has been amended as follows:

--Some representative examples of free radical initiators which are commonly used include the various peroxygen compounds such as potassium persulfate, ammonium persulfate, benzoyl peroxide, hydrogen peroxide, di-t-butyl peroxide, dicumyl peroxide, 2,4-dichlorobenzoyl peroxide, decanoyl peroxide, lauryl peroxide, cumene hydroperoxide, p-menthane hydroperoxide, t-butyl hydroperoxide, acetyl acetone peroxide, dicetyl peroxydicarbonate, t-butyl peroxyacetate, t-butyl peroxy maleic acid, t-butyl peroxybenzoate, acetyl cyclohexyl sulfonyl peroxide, and the like; the various azo compounds such as 2-t-butylazo-2-cyanopropane, dimethyl azodiisobutyrate, [4,4'-azobis(4-cyanovaleric acid)] 4,4'-azobis(4-cyanovaleric acid), [Azo] azo carboxy valeric acid, azodiisobutyronitrile, 2-t-butylazo-1-cyanocyclohexane, 1-t-amylazo-1-cyanocyclohexane, and the like; the various alkyl perketals, such as 2,2-bis-(t-butylperoxy)butane, ethyl 3,3-bis(t-butylperoxy)butyrate, 1,1-di-(t-butylperoxy) cyclohexane, and the like. Persulfate initiators, such as potassium persulfate and ammonium persulfate are especially useful in such aqueous emulsion polymerizations.--